

SOIL YOUR UNDIES CHALLENGE

Soil Texture

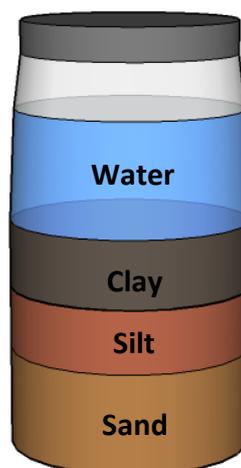
Parent/teacher information sheet



Exploring Soil Texture

What do we do?

1. Have participants collect all the equipment needed for the experiment, including:
 - a. A jar with a lid (around 250mL will be fine).
 - b. A handful of soil from where your undies are buried.
 - c. Around 200mL of water.
2. In the jar, $\frac{1}{4}$ fill it with the soil sample.
3. Fill the same jar with the water until it is about $\frac{3}{4}$ full and screw the lid on.
4. Shake the jar for 5 minutes and then leave for 3 hours or overnight for contents to settle. Try not to disturb the jar too much during this time!
5. After three hours or the next day, take a look at your jar and observe the new layers. These are your sands, silts and clays!
6. Have participants draw a picture of their jar and its layers – it should look something like this:



What do the results mean?

Texture is an essential component of soil health and exploring the physical characteristics of our soil can help us determine the influences it will have on plant growth, microbial activity and other essential processes occurring in the ecosystem. Rock, either originating as igneous, sedimentary, or metamorphic, is the source of all soil minerals and origin of all plant nutrients other than of nitrogen, hydrogen and carbon. As the parent material is chemically and physically weathered, transported, deposited and precipitated, it is

transformed into a soil. Additionally, decaying organic matter like plants and animals, gases, liquid and millions of other organisms constitute the soil.

In particular soil texture influences how well nutrients are able to hold onto the, water storage and drainage. We can break soil texture down into three distinct sizes including sands, silts and clays. Particles of sand are generally quite large and can be compared to a bus in the world of soil. Next are silts, which are comparable to a basketball, and lastly, the smallest of the particles, clays. Clays are very fine particles that have a relative size comparable to a five-cent piece. Soils with a higher proportion of sand retain or absorb less nutrients and water compared to clay soils. Clay soils may be prone to waterlogging and poor drainage, where silty soils are somewhere in between.

When looking at our soils, it's often difficult to see all particle sizes without looking closely. To observe the particle sizes of our soils, we can instead undertake a special experiment. To do this, you and your curious young ones will need a jar with a lid (around 250mL is a good size), a large handful of your sample soil, and a little bit of water.

Further information:

Soil texture influences how water moves through the soil, the amount of nutrients available (more clay = more nutrients), and how easily roots can grow.

Sand: Comprised of quartz and resistant primary minerals such as mica. Sand particles are between 2 mm and 20 microns in diameter (relative size: Bus).

Silt: Silts are typically composed of quartz and small mineral particles such as feldspars and mica, and are between 2 and 20 microns in diameter (relative size: Basketball).

Clay: Clays are made up of secondary clay minerals and oxides/oxyhydroxides of iron and aluminium, and are less than 2 microns in diameter (relative size: 5-cent piece).